

Date: Monday, 23/02/2009 10:12:35 AM
 User: Julie Dawson

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : FWD TUBE ASSEMBLY
Job Number : 45954	
Estimate Number : 10467	
P.O. Number :	Part Number : D3391021
This Issue : 23/02/2009 S.O. No. :	Drawing Number : D3391 REV H
Prsht Rev. : NC	Project Number : N/A
First Issue : / / Type : SKIDTUBES	Drawing Revision : H
Previous Run : 45953	Material :
Written By :	Due Date : 10/03/2009 Qty: 1 Um: Each
Checked & Approved By : <u>JUD 09.02.23</u>	
Comment :	
Est. A 05.09.13 New issue KJ/JLM	
Est. B 06.02.10 Dwg rev.D ecn 773 EC	
Est. C 06.05.02 Added inspections EC	
est D 07.03.13 rev F dwg EC	
est E 07.11.07 revG dwg ecn1053P EC verified by: DD	
Est Rev:f ECN 1056 07-11-12 DD verified by: EC	
Est Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC	
Est Rev:H 08-09-10 revH as per dwg DD verified by:EC	
Est Rev J 09.02.02 added hardware EC verified by: DD	

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

1.0	D6013047	Skidtube Material
-----	----------	-------------------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

SKIDTUBE MAT'L

Pick:

Qty Part Number Description Batch

2.0	SKIDTUBES 1	SKIDTUBESS RESOURCE 1
-----	-------------	-----------------------

2.0 SKIDTUBES 1 SKIDTUBESS RESOURCE 1

**Comment:** LANDING GEAR RESOURCE 1

Cut extrusion to 46.52 +0.010 -0.020

3.0	BENDING	BENDING MACHINE - SKIDTUBES
-----	---------	-----------------------------

**Comment:** No bender

Bend as per Dwg D3391 Using Bend Prog 3391021

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 23/02/2009 10:12:35 AM
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Drawing Name: FWD TUBE ASSEMBLY

Job Number: 45954

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

4.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 09/02/24 (X)

5.0

HAAS1

HAAS CNC VERTICAL MACHINING #1



Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine as per Folio FA590 Rev. F & Dwg D3391 Rev. H

Identify as D3391-1

2-Deburr

N.A 09/02/29

6.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

N.A 09/02/29

7.0

MILLING CONV.

CONVENTIONAL MILLING MACHINE



Comment: CONVENTIONAL MILLING MACHINE

Drill X1 Aft cap as per Dwg D3391 .1875" dia

SA 09/03/03 (1)

8.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

SA 09/03/03 (1)

9.0

QC8

SECOND CHECK



Comment: SECOND CHECK

S 09/03/03 (X)

10.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

- 1-Drill float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)
(ONLY DRILL HOLES MARKED "A")
- 2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step
- 3-Open tow cap holes to .208" as per Dwg D3391
- 4-Open Tow Ring hole to .640" as per Dwg D3391
- 5- open float bag holes 0.328" and counter sink as per dwg D3391

Hum 9.3.4

W/O:		WORK ORDER CHANGES					
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

6-Deburr & Scribe Batch number Inside aft end.

ANM 9-3-4

7-Transfer drill D3391-021 with D3391-023

M 9-3-6

11.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

80803/10 @

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

D M 9-3-9

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

BE 9-3-9

14.0

D36704200

SPACER



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

SPACER

batch:

B 411863 @ M 9-3-9



15.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-instal spacers as per dwg D3391

A/R Magnabond 6398

batch: *M 109900*

M 9-3-9

exp. date: *9-9-19*

cure time 12hrs. as per QSI015

2- grind crossbolt flush

M 9-3-10

3-back drill crossbolt if necessary

16.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

109-03-11 @

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Process Sheet

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Job Number: 45954

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

17.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING pressure wash 09-04-01 x101
Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3 M 110939

START TIME:

4:00

OVEN TEMPERATURE:

320

FINISH TIME:

4:30

BR 09-04-01

①

18.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

09-04-02

(X)

19.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
Tow Cap Assembly B 41931

24

20.0

D356413

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
Wearshoe B 45409

X 24

21.0

D356613

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
Gasket B 45717

24

22.0

D36721

Phenolic Washer



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)
Phenolic Washer B 39275

24

23.0

AN3C4A

BOLT



Comment: Qty.: 10.0000 Each(s)/Unit Total: 10.0000 Each(s)
BOLT M 1111279

24

09-04-02 (X)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Job Number: 45954

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

24.0

AN960C10L

washer



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)
washer

M111193

JU

25.0

AELS1032130

INSERT



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)
INSERT

M108606

* JU

26.0

AELS1032225

INSERT



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)
INSERT

M119393

JU

09-04-02

(XU)

27.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1
Identify and Stock
Location: _____

28.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: SKIDTUBESS RESOURCE 1
**** install D3591-1 spacer as per DSI0364 ****

JU

09-04-02

(XU)

29.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/04/13

Job Completion



MF
09-04-09

229.1

QC5 inspect work to current stop
8/4/06

PPP 46600

(C9/4/06)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 45954
Description: Float Skidtube (412)		Part Number: D3391-1
Inspection Dwg: D3391	Rev: SW	Page 1 of 1

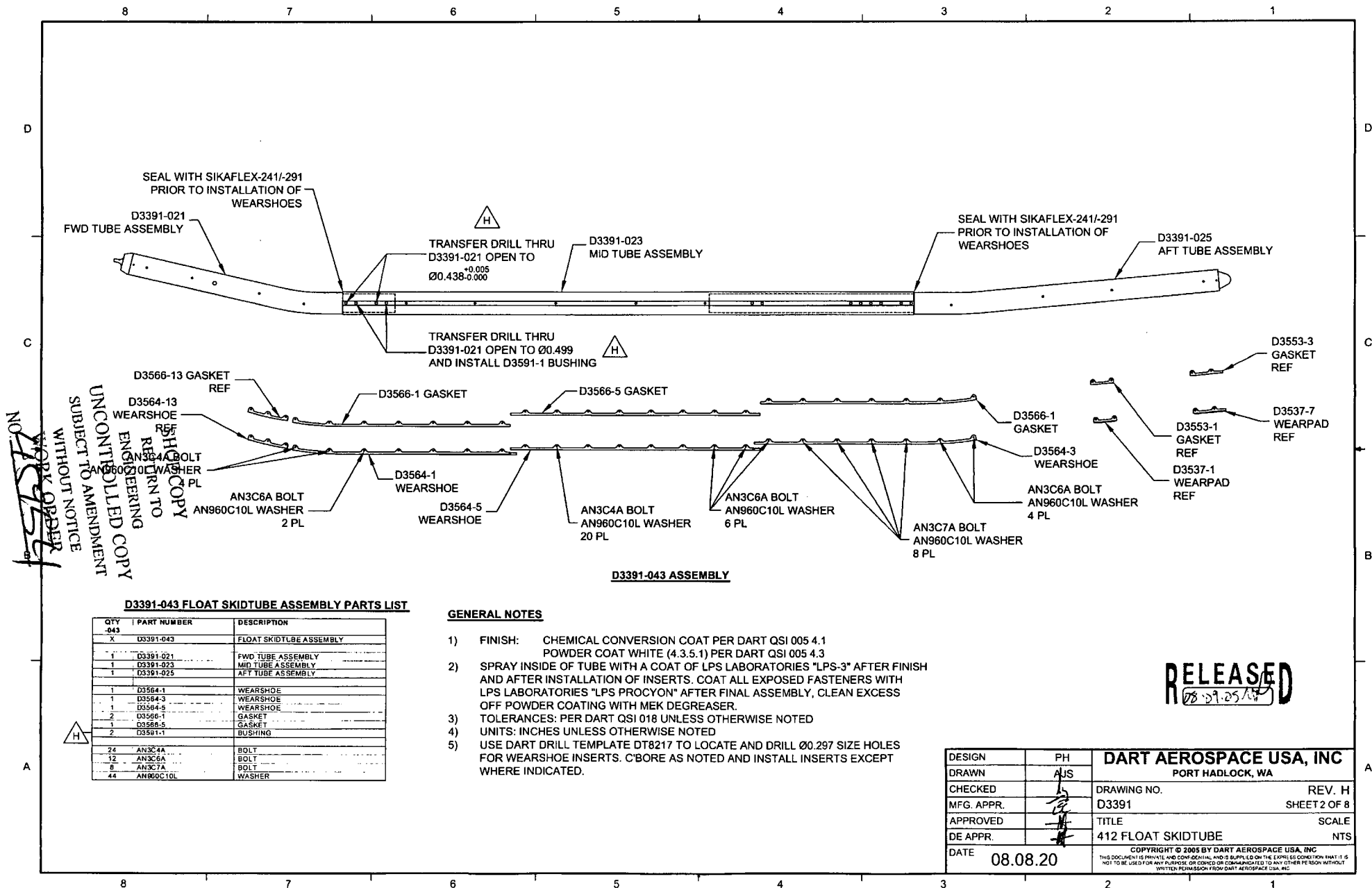
FIRST ARTICLE INSPECTION CHECKLIST

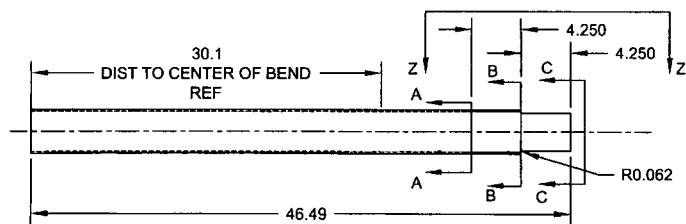
☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.687	+0.010/-0.000	0.692	✓			
3.590	+0.025/-0.010	3.597	✓			
3.300	+0.040/-0.000	3.325	✓			
1.429	+0.040/-0.060	1.435	✓			
4.250	+/-0.010	4.250	✓			
4.250	+/-0.010	4.254	✓			

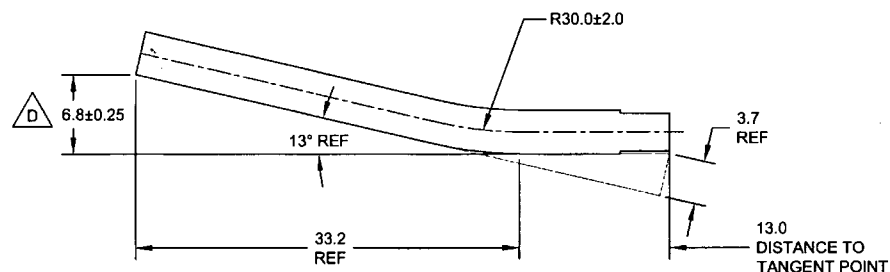
Measured by: H.A	Audited by: S	Prototype Approval: N/A
Date: 09/02/29	Date: 09/03/03	Date: N/A

Rev	Date	Change	Revised by	Approved
A	06.04.27	New Issue P/O D3391-011/-021	KJ/JLM	
B	06.06.19	Tolerances revised per D3391 Rev. E	KJ/JLM	
C	07.03.21	Dimensions removed per Dwg rev. F	KJ/JLM	
D	07.11.23	Dwg Rev. updated	KJ/EC/DD	

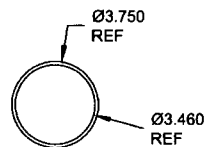




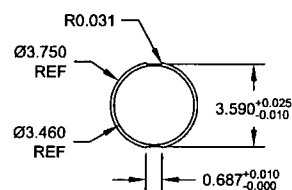
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



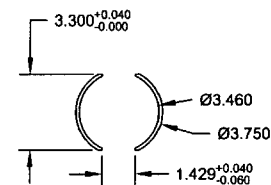
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



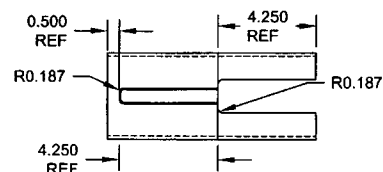
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X



SECTION C-C
SCALE 2X

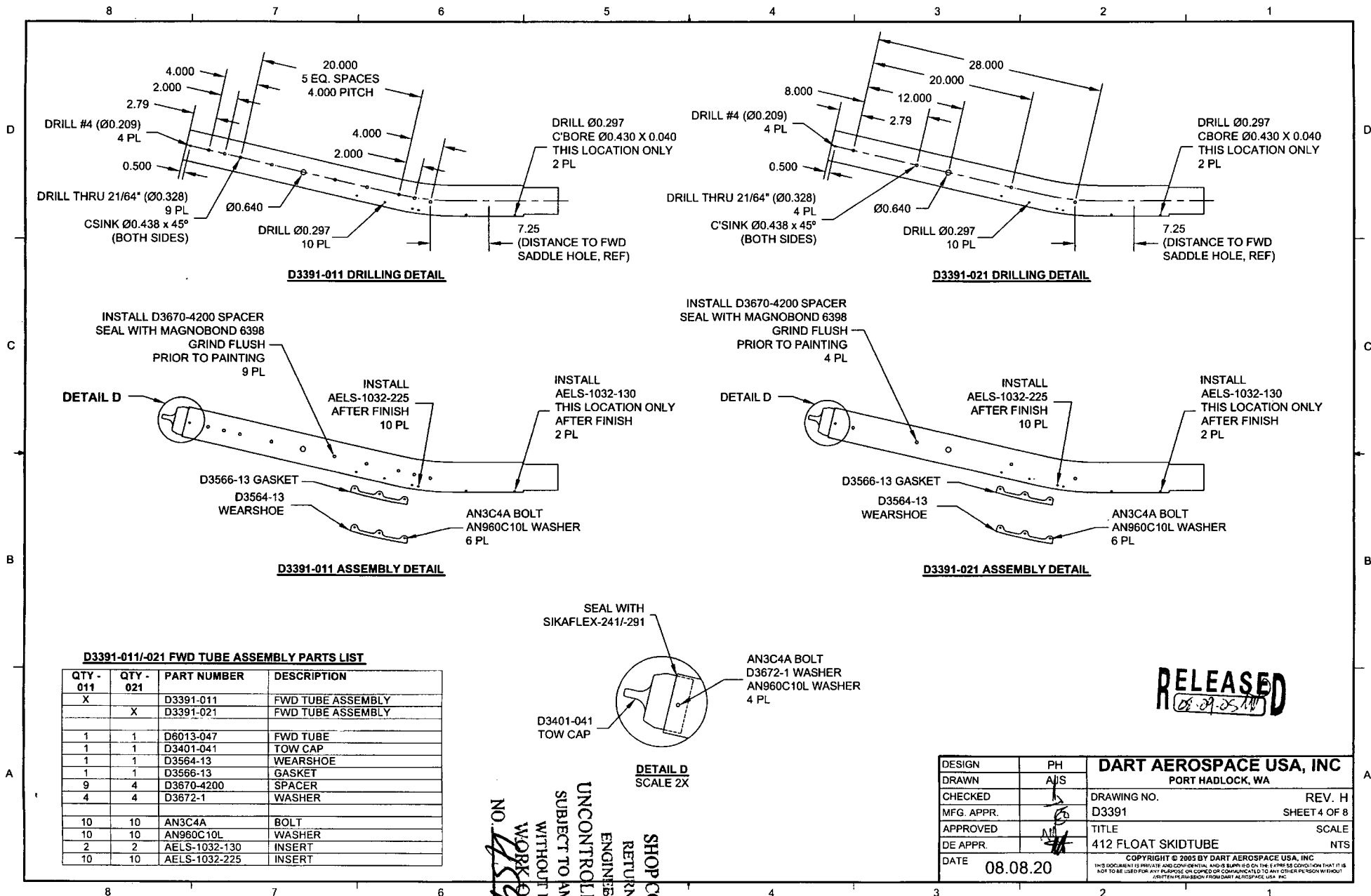


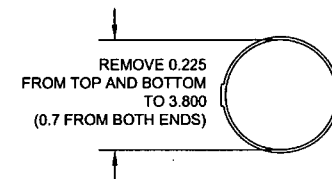
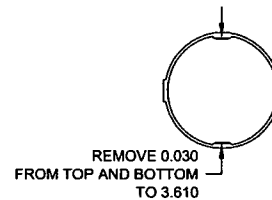
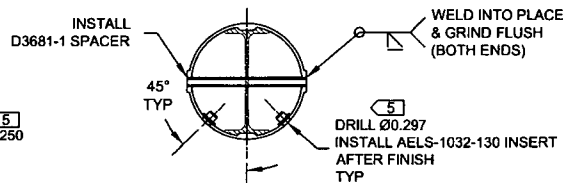
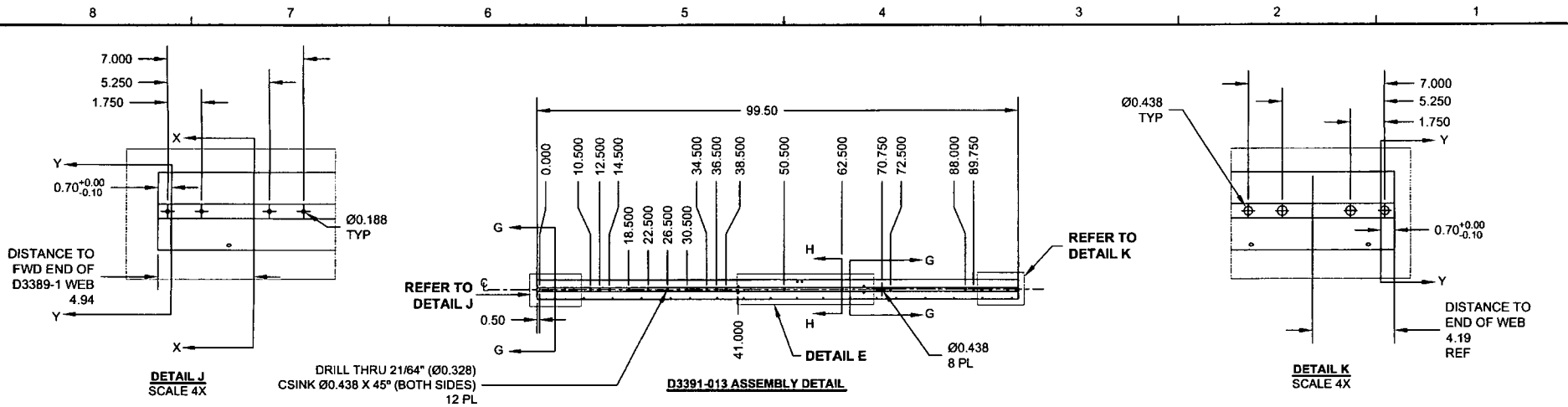
VIEW Z-Z
SCALE 2X

RELEASED
8-9-05

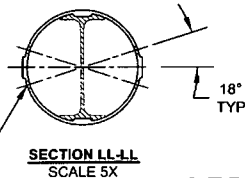
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DRAWN	AUS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 3 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NT
DATE	08.08.20	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC	
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NO. 458934





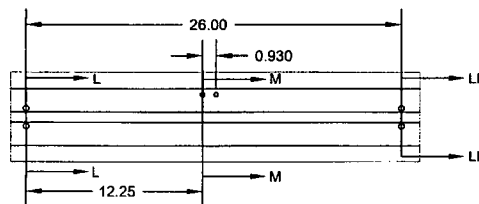
DRILL Ø0.297
INSTALL AELS-1032-130 INSERT
MS27039C1-09 SCREW
D3672-1 WASHER
AN960C10L WASHER
AFTER FINISH
4 PL



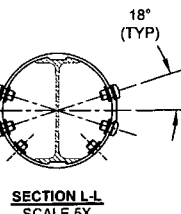
RELEASED

D3391-013 MID TUBE ASSEMBLY PARTS LIST

QTY -013	PART NUMBER	DESCRIPTION
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW



DRILL Ø0.391
INSTALL ALS4-428-165 INSERT
MS27039C4-08 SCREW
D3672-3 WASHER
AN960C416L WASHER
AFTER FINISH
4 PL

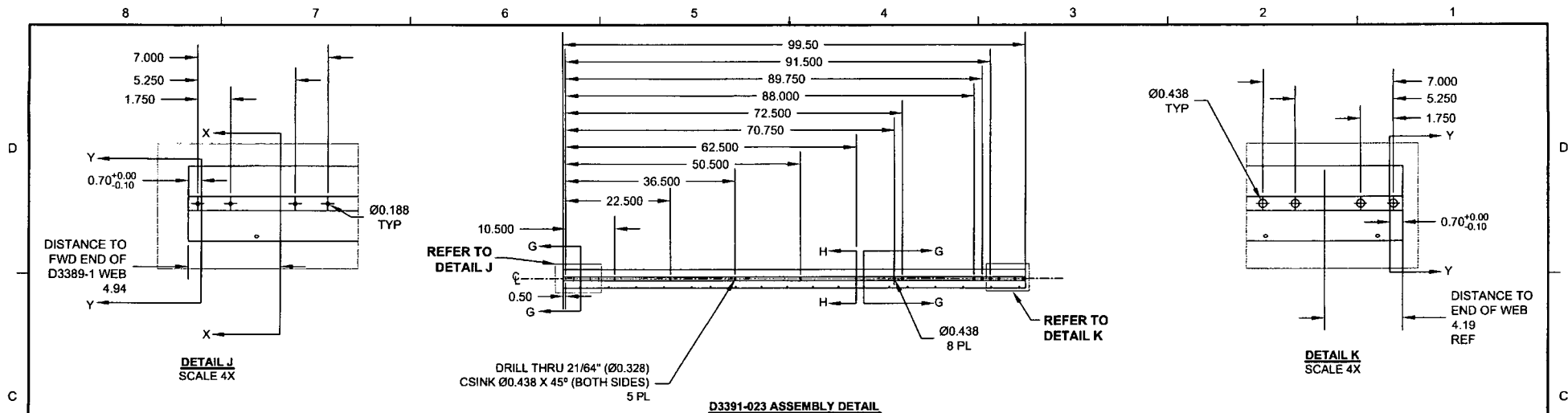


D3391-013 MID TUBE ASSEMBLY

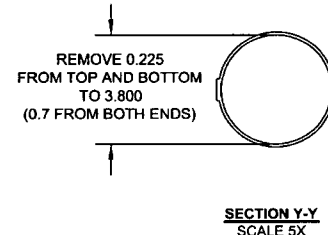
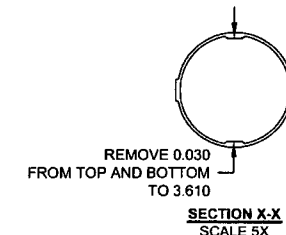
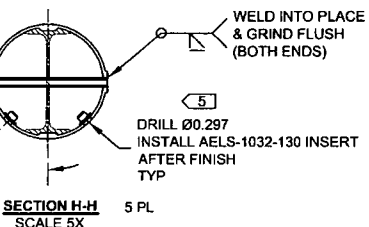
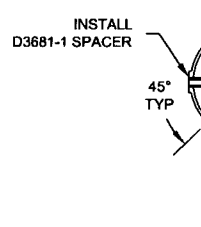
- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-231/233 PER QSI 015
- 3) WELDING: PER DART QSI 004

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MFG. APPR.		D3391	SHEET 5 OF 8
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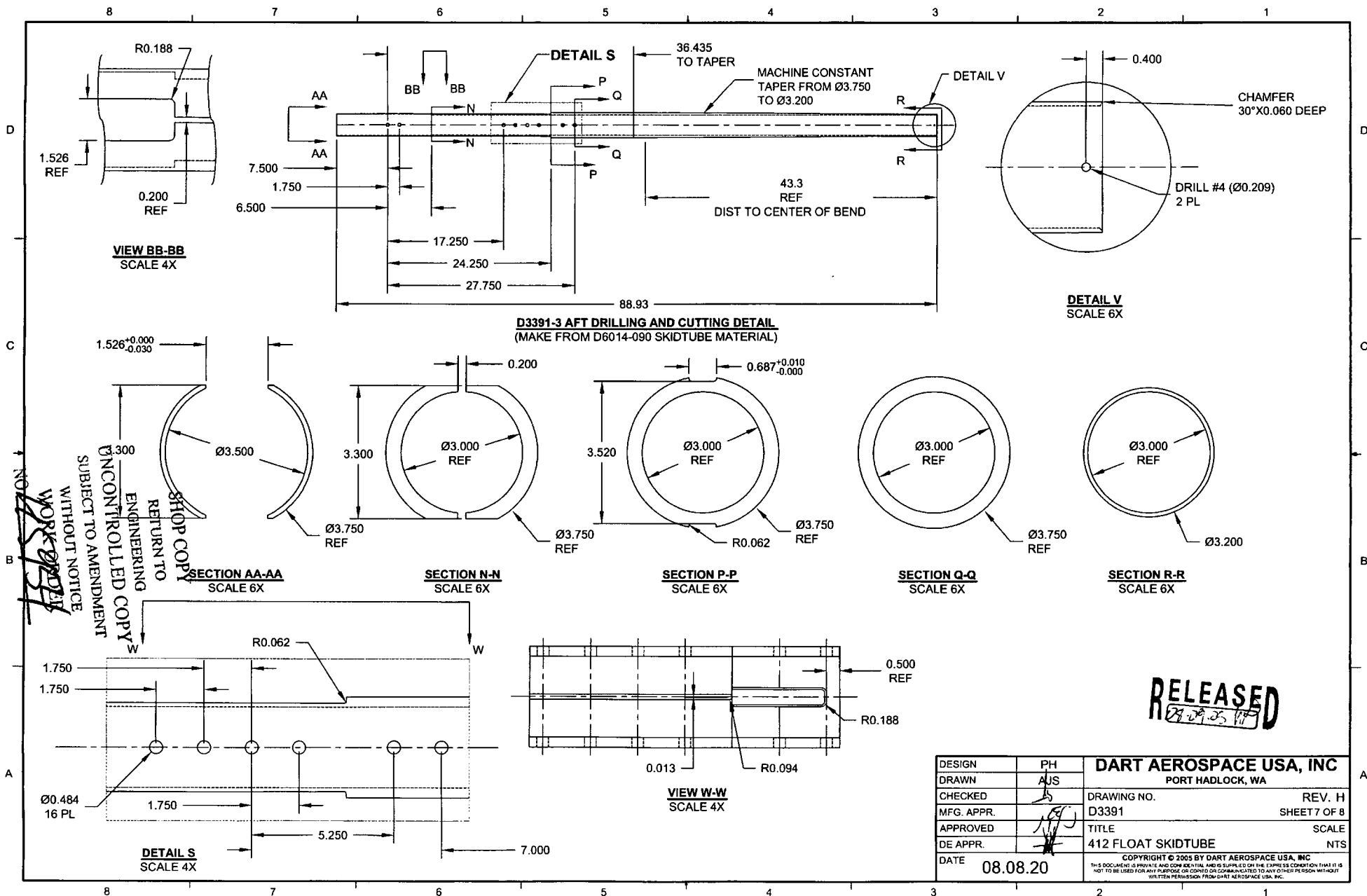
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 08-29-05-17

D3391-023 MID TUBE ASSEMBLY PARTS LIST

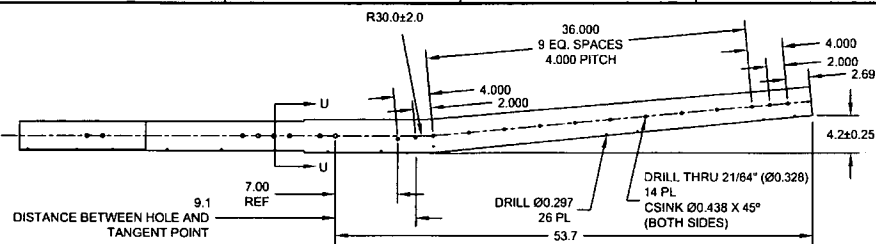
QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

- D3391-023 MID TUBE ASSEMBLY**
- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
 - 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
 - 3) WELDING: PER DART QSI 004

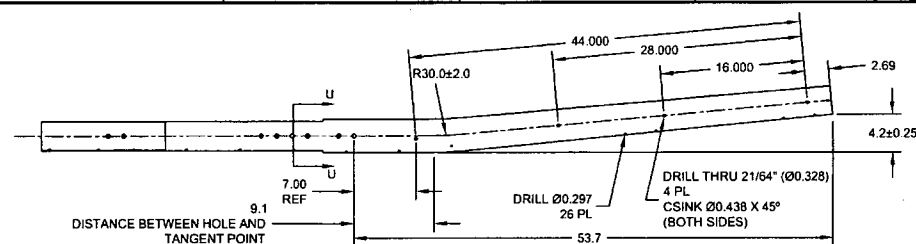
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CHECKED		DRAWING NO. D3391	REV. H
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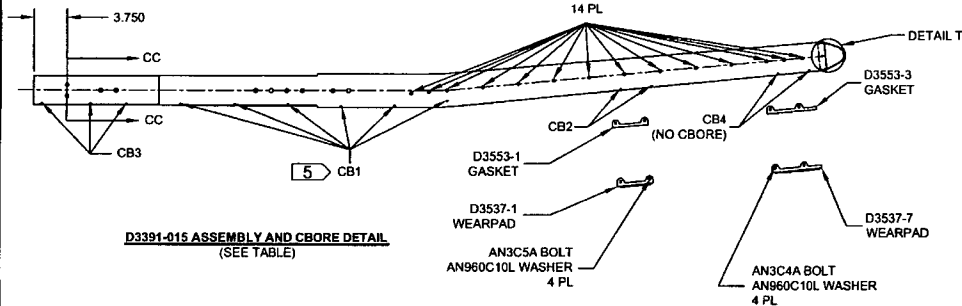
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CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 7 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
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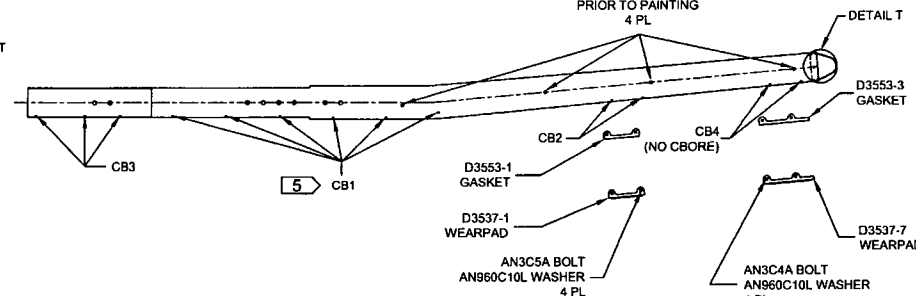
D3391-015 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



D3391-025 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



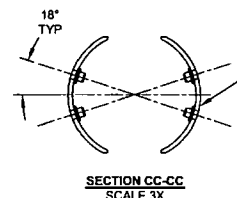
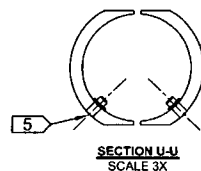
D3391-015 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)



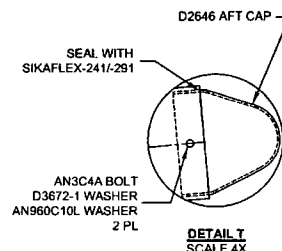
D3391-025 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
		D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
14	14	AELS-1032-130	INSERT
12	12	AELS-1032-225	INSERT
4	4	ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER



DRILL Ø0.391
CBORE Ø0.516 X 0.040 DEEP
INSTALL ALS4-428-165 INSERT
4 PL



RELEASED
08-09-2010

CBORE HOLES MARKED CB1-CB4 AS FOLLOWS AND
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

HOLES MARKED	QTY	D3391-015	QTY	D3391-025	CBORE	P/N
CB1	12		12		Ø0.430 X 0.170	AELS-1032-225
CB2	4		4		Ø0.430 X 0.170	AELS-1032-130
CB3	6		6		Ø0.430 X 0.040	AELS-1032-130
CB4	4		4		NONE	AELS-1032-130

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NO. 45924

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 8 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
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